

Hamilton (J. B.)

A REPORT

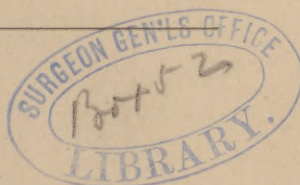
— ON —

The Treatment of Fractures,

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BY J. B. HAMILTON,

KANE, ILLINOIS.

Reprinted from Transactions of the Illinois State Medical Society.



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FERGUS PRINTING COMPANY,
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Treatment of Fractures

In Illinois.

To those who have been placed in similar circumstances, it will not appear strange that this report is, for one that ought to be in highest degree statistical, so meagre in outline and incomplete in detail. But those who, in *verbis vulgaris*, "have been there before," will readily understand that negligence in business, so characteristic of professional men, prevents a prompt response to appeals for statistics.

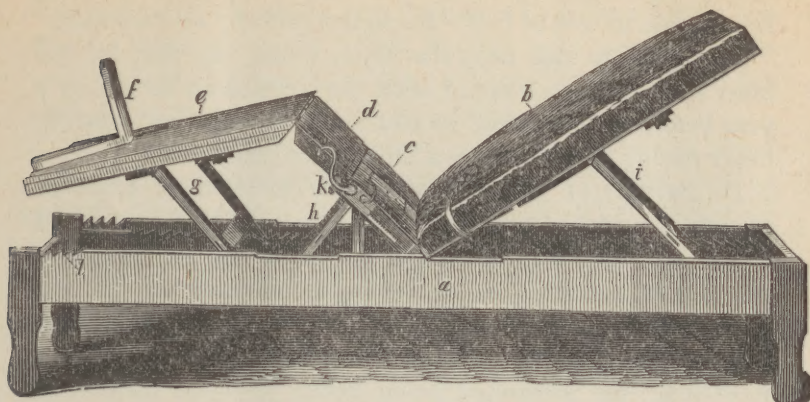
The writer ventures to express the hope that the records of private cases may be more fully kept as respects accuracy in the practical details, and that the next decade may be marked by a correspondingly higher scale of "perfect results," fewer cases of deformity, and a disposition to avoid routinism.

The *Treatment of Fractures* is the subject of this paper, hence it is not within its scope to enter into details of *diagnosis* or *etiology*, being barren of facts bearing on *differential diagnosis* or *controversial points*.

First in importance, but not in frequency, are FRACTURES OF THE FEMUR, which we find to have been treated mainly with the *long splint*, and with good success.

Dr. Plummer, of Rock Island, calls attention to his cases, treated with a Truesdale's fracture-bed (a cut of which is subjoined); but we do not find that the results are in any

way superior to those obtained by Prof. Sands, of New York, with a simple plaster Paris bandage, or to very many cases treated with the long splint of Dessault or Physick. Let us see.



Dr. Truesdale's Fracture-Bed.

Dr. Plummer reports: "CASE I. *Michael Davis*. Compound and comminuted fracture of the femur; crushed by the roof of a coal mine falling on him; was called to amputate, but concluded to make an effort to save the limb; applied Truesdale's fracture-bed and lateral splints of binders' board; succeeded. Cured with a straight thigh and no perceptible shortening.

"II. *Patrick Kelly*. Oblique fracture of middle-third of femur; used Truesdale's fracture-bed and lateral splints of binders' board. No shortening.

"III. *A. E. Eberhard*. Oblique fracture of femur, middle-third; used Truesdale's fracture-bed and lateral splints of binders' board. No shortening."

Now these are excellent results, and Dr. Plummer has our thanks for calling especial attention to Dr. Truesdale's fracture-bed; but then a question very naturally arises as to how much of these was due to the fracture-bed, and how much to those lateral splints of binders' board? Let us look a little farther.

Dr. J. O. Hamilton, of Jerseyville, reports a case of fracture of femur, treated November 16, 1854:

"*George W. Witt*, aged 13. Fracture of right femur, upper-third; improvised splint in imitation of Physick, extending from axilla to sole of foot. Recovery perfect; no deformity."

In regard to this case, the writer would say that he had been intimately acquainted with the gentleman for nearly a year before he knew that he had had a fracture, and that he never during that time saw a limp in his gait.*

Dr. Bartlett, of Virden, reports four cases, one of which he reports as intra-capsular, and in all of which Hodgen's splint was used. There was shortening in three cases, the maximum being $\frac{3}{4}$ of an inch. No shortening in one case.

Dr. Herriott, of Grafton, reports thirteen cases of fracture of the femur, in only one of which the cure was effected without shortening, the maximum being about $\frac{1}{4}$ of an inch. His treatment was "usually extension and counter-extension by weights and pulleys, the limbs flexed by resting on sand-bags, and short splints to internal and external aspect of limb." He mentions that he has "frequently had patients walking without the aid of crutches, in from forty to forty-eight days."

Dr. Horace Wardner, of Cairo, reports ten cases of fracture of femur, six of which were treated with Physick's long splint, and of these two recovered without perceptible shortening or deformity, although three were compound comminuted. Three cases were dressed with double inclined plane, and one case died from internal injuries received before a dressing could be applied.

Dr. Breed, of Princeton, reports a case of fracture of the femur treated with long splint and extension by weight and pulley, and adhesive straps, which recovered without shortening.

Dr. J. P. Anthony, of Sterling, reports nine cases of fracture of femur, which were treated with long straight splints and extension by adhesive straps and weights. Of these there

* Shortening exists of nearly $\frac{1}{2}$ an inch, but the gentleman inclines the pelvis so that no limp results, except when very tired.

was no shortening in three cases. The minimum shortening in the remainder was 1-16 of an inch, and the maximum only $\frac{1}{4}$ of an inch.

Dr. Clark Roberts, of Winchester, reports eight cases of fracture of femur, which were treated with Gibson's modification of Dessault's splint. Two of these were compound. In only one case recovery took place without shortening, and the maximum shortening was $\frac{1}{2}$ of an inch.

Dr. E. P. G. Holderness reports a case of fracture of femur in a child five years old, which was treated with Physick's long splint, and in which a perfect cure resulted without deformity.

Dr. A. K. Van Horne, of Jerseyville, reports three cases of fracture of the femur, of which one was compound comminuted, and the condyles separated. This case was treated with Hodgen's modification of Smith's anterior splint, shortening $\frac{3}{4}$ inch. One other case was treated with the same dressing, and recovered without shortening or deformity; and one case treated by simple extension on a double-inclined plane, with weights and pulley. The doctor says he used cold water dressings with all cases.

Now, to go outside of Illinois, we shall find a report "On the use of plaster of Paris in the treatment of fractures, especially of the femur," by Prof. Sands, of New York, which is very complete; and for the advocates of immovable dressings leaves nothing to be desired. It will be found in the *New York Medical Journal* for June, 1871. Prof. Sands justly remarks that plaster of Paris receives its severest test in fractures of the femur. He invariably makes use of extension by the compound pulley, where manual extension proves insufficient, and in either case counter-extension. He employs for counter-extension an iron bar, similar to Volkmann's. To use the doctor's description: "This bar is so fastened as to rise vertically from the table on which the patient is placed during the adjustment of the bandage. Before being used it should be covered with cotton, or any other soft material, to prevent injury to the perinæum. The patient having been placed on the table, astride the iron bar, and if necessary ether admin-

istered, sufficient extension is made to bring the limb to its proper length. The plaster bandage is then applied from the foot to the groin, and around the pelvis in the form of a stout spica." While the patient is being lifted from the table by a couple of assistants, the bandage is passed around the pelvis, and counter-extension, by means of the iron bar, is at the same time effectually maintained.

Dr. Sands has applied the plaster splint in twenty-three cases of fracture of the femur, two of which were compound. He gives the following analysis :

"In eighteen cases out of the twenty-three the bandage was applied within six days from the time of injury. An anæsthetic was found necessary to permit reduction in eleven cases. In one case the bandage caused excoriation of perinæum, and was removed. In no other instance was the bandage removed until bony union had taken place. In one case, although the union was firm, the presence of an old dislocation prevented the length of the limb from being accurately measured."

The remaining cases he arranges in the following form :

"Under 15 years, seven cases. No shortening in two cases; maximum shortening, $\frac{3}{8}$ inch; average shortening, $\frac{1}{6}$ inch; average period of union, $5\frac{1}{2}$ weeks.

"Over 15 years, fourteen cases. No shortening in six cases; maximum shortening, 1 inch; average shortening, $\frac{1}{3}$ inch; average period of union, 7 weeks."

From the above it will be seen that Dr. Plummer has had three cases cured without deformity, with the use of lateral splints and Truesdale's fracture-bed, and on these cases he argues that the fracture-bed is a *sine qua non* in the treatment of this fracture; but the testimony shows that equally good results have been obtained with long splints, Hodgen's splint, and the plaster bandage.

The cheapness of Hodgen's splint, its easy adaptation to the surface of the limb, its efficient extension (counter-extension being made by the gravity of the body), the freedom of motion allowed by it, must make it one of the most desirable

contrivances in use for the treatment of this fracture. It is peculiarly well adapted to the treatment of compound or open fractures.

The best arguments in favor of the plaster bandage that have been made on this side of the water are by Prof. Sands—already cited in this paper—and prove beyond a doubt that in skilled hands it may be used to admirable advantage.

FRACTURE OF THE TIBIA.—Of this fracture Dr. Horace Wardner, of Cairo, reports ten cases, in none of which any perceptible shortening resulted. Six cases, of which two were compound or open, were treated with fracture-box, four were dressed with posterior splint. With two exceptions, all these fractures were dressed on the day of fracture, and those were not dressed until the third day after the injury.

Dr. J. P. Anthony, of Sterling, reports two cases of fractured tibiæ, which were treated with fracture-box, and in which no shortening or deformity resulted.

Dr. Clark Roberts, of Winchester, reports six cases treated with splints and inclined plane, and afterward starch bandage, all dressed on the day of fracture, and all recovered without deformity or shortening.

In the writer's practice, fractures of the tibia have been somewhat frequent; but he is under the necessity of regretting that imperfectly kept records prevent him from reporting in full. He can, however, present five cases in detail.

CASE I and II. *Fudson Pope*, æt. 14, while riding on the same horse with *Richard Neece*, æt. 13, the horse stumbled and fell on its side, breaking the right tibia of each boy, and, singularly enough, within a-quarter of an inch of the same distance from the malleolus in each, and about the junction of middle with lower-thirds. The boys were seen and their legs dressed with a quilt compress within two hours after the fracture occurred. On the fifth day this compress was removed, and a plaster bandage substituted. On the fourteenth day the boys were allowed to go on crutches; of course, bearing no weight on the foot, it being supported by a sling reaching from the neck to the instep. Both cases recovered without

deformity. Case I being in better health than the other previous to the accident, recovered much sooner than the other—in fact, attended school in less than three weeks from the date of the injury, the limb being encased in plaster.

I have two other cases on record, only differing from the above in the ages of the patients, the causes of the accident, and in duration of the treatment. The remaining case was somewhat peculiar:

S. J. Varble, æt. 21, was driving mules in December, 1872; stopped to adjust the harness, and was kicked by one of the mules, receiving a fracture of the tibia; he fell, and on attempting to arise he again fell, and the upper fragment shot through the integuments immediately below the seat of fracture, constituting an open fracture. The fracture was very oblique. He was seen by the writer in about four hours; considerable swelling had supervened, and the parts about the seat of fracture were ecchymosed. Owing to the intense pain complained of by the patient, the leg was placed upon a pillow, and a lotion of tinct. arnica and laudanum directed. On the following day, the leg was placed in a quilt compress. On the fifth day, a careful measurement showed a shortening of about $\frac{3}{4}$ of an inch. Extension was now attempted with adhesive strips and weight, but patient, being *impatient*, objected, and removed the weight immediately after my departure. The following day he was warned of the consequences, but said that he preferred a shortened leg to the pain of extension, and utterly refused to allow extension to be made. After calling witnesses to hear his refusal, the leg was encased in plaster, and a fenestra made opposite the open wound. The wound was dressed with carbolic acid, and bony union took place in about six weeks, shortening nearly an inch.

FRACTURE OF THE TIBIA AND FIBULA.—This, judging from reports received, is not a very frequent fracture.

Dr. R. M. Wilson, of Palmyra, reports three cases of fracture of both bones of the leg, of which two cases were simple and one complicated, with outward dislocation of ankle-joint.

These cases were all treated with lateral splints ; well padded with cotton for the first fourteen days ; then a starch bandage was applied ; and, with the exception of the latter, which resulted in partial loss of motion of ankle-joint, the result was perfect. No shortening or deformity visible.

Dr. J. O. Hamilton, Jerseyville, reports a case treated from the beginning with plaster splints ; removal at sixty days ; leg found to have united perfectly. No shortening or deformity.

Dr. Breed, of Princeton, reports two cases of this fracture, one of which was treated with a fracture-box and extension by weights and pulleys, shortening $\frac{1}{2}$ inch ; the other case was complicated, as was afterwards discovered, with rupture of the interosseous artery. Gangrene occurred. The leg was amputated, and patient died ; the doctor thinks from pyemia.

Dr. Bartlett, of Virden, reports four cases of this fracture, of which two were open and comminuted. One of these was dressed in fracture-box ; the remaining three were dressed with Hodgen's suspension splint.

Dr. J. T. Frazer, St. Elmo, reports a case of open comminuted fracture of tibia and fibula, in a child eight years of age, treated with lateral splints ; applied dilute carbolic acid to wounds ; bones united perfectly ; time not stated.

Dr. J. P. Caldwell, of Glasgow, reports a case treated with fracture-box ; good result.

Dr. S. C. Plummer, of Rock Island, reports two cases ; one an open fracture at the junction of middle and lower-thirds. Used Mason's-inclined plane splint and lateral splints of binders' board for six weeks ; then used Truesdale's fracture-bed. This patient was seventy years old. The injury was received on December 2, 1871, and he was discharged on the 4th of March following. He worked as a day laborer, but with $\frac{1}{8}$ inch shortening. The remaining case was an open oblique fracture, near junction of middle with lower-thirds. Used Mason's double-inclined plane (similar to Liston's) and lateral splints of binders' board. Shortening $\frac{1}{8}$ inch. Date of fracture, August 21. Discharged October 25.

Dr. Clark Roberts, of Winchester, reports four cases treated with double-inclined plane and short lateral splints, followed by starch bandage. No shortening; duration of treatment not stated. He also reports a case where there was a non-union of the tibia, but the fibula united perfectly.

Dr. J. P. Anthony, of Sterling, reports eight cases of this fracture, of which a number (exact number is not stated) were treated with double-inclined plane, fracture-box, Day's patent splint. Of these cases five were cured without shortening; the maximum shortening in the remainder was $\frac{1}{2}$ an inch. Unfortunately, the doctor neglected to state which cases had the resulting shortening, so we are left to conjecture whether those cases with shortening occurred after the use of the inclined plane, the Day's splint, or the fracture-box.

Dr. E. L. Herriott, of Grafton, reports ten cases of this fracture. The doctor treated them all with extension by weights and pulleys, the leg being flexed upon sand-bags; and he was fortunate enough to have all his patients recover without deformity or shortening.

Dr. Van Horne, of Jerseyville, reports two cases of this fracture, both of which were open fractures; one of which was treated with fracture-box, limb previously enveloped in roller bandage; the other by Hodgen's splint. No shortening in either case. Dressing in one case immediately (Hodgen); in the other one, on the fourth day.

Dr. Geo. W. Lasher, Bluffdale, reports a case treated with fracture-box and extension by adhesive strips and weights, in which the shortening was about $\frac{1}{4}$ inch.

Dr. Horace Wardner, Cairo, reports three cases of this fracture treated with fracture-box. Dressed on day of fracture in two cases; there was no shortening. In the other the shortening was $\frac{1}{4}$ inch.

The writer had a case last summer of this fracture. Man thrown from a horse, breaking both bones. There was comminution. Treated on the date of fracture with quilt compress. On the fifth day applied plaster splint. Patient used crutches on twenty-first day, and was discharged at the end of twelfth week. No shortening.

Dr. J. H. Etheridge, Chicago, since this report was begun, reports a case treated with plaster splint without shortening. Duration of treatment not stated.

FRACTURE OF FIBULA.—Dr. R. M. Wilson, of Palmyra, reports a case of fracture of fibula, complicated with an outward dislocation of the ankle-joint. Applied Dupuytren's splint for the first five days, and then a starch bandage. No shortening.

Dr. Plummer, of Rock Island, reports a case of fracture of fibula at lower end, complicated with crushing of astragalus. This fracture was produced by the patient jumping from a carriage while it was in rapid motion. Used Mason's double-inclined plane splint, extension by adhesive strips, and lateral splints of binders' board. No shortening, and a good ankle-joint. This fracture occurred November 3, 1870. He was discharged January 21, 1871.

FRACTURES OF PATELLA.—Dr. Anthony, of Sterling, reports two cases of fracture of the patella, which, he says, were each received by patient jumping from a wagon—a warning to peripatetic individuals who are emulous of circus tumblers. These fractures were dressed with straight splints. Good result.

FRACTURES OF BONES OF FOOT.—Dr. Plummer's case, just cited in Fractures of Tibia and Fibula, and two cases by Dr. Anthony, are all that have been reported to me. The latter were treated without apparatus; one case made a good recovery, and the other resulted in deformity.

FRACTURES OF CLAVICLE.—Through a typographical error, this fracture was omitted from the printed list sent to the members of this Society, and I have only a limited number of cases to report.

Dr. Breed, of Princeton, reports a case of this fracture treated with Fox's apparatus, in which a good result was obtained without deformity. This was a child *æt.* 1½ years.

Dr. Herriott, of Grafton, and Dr. Bartlett, of Virden, each report several cases; but both gentlemen unfortunately forgot to designate the apparatus or state the result.

In the writer's practice, three cases have occurred in 1872.

CASE I. *Anna Knowles*, æt. 5, fell from fence, striking on shoulder, fracturing clavicle at middle-third. Dressed with figure of eight bandage. A little deformity resulted.

CASE II. *Amos Donny*, æt. 70, thrown from wagon; fracture of clavicle at middle-third. Applied a neck-yoke splint, with axillary pad. Recovery perfect, rapid union, and not the slightest deformity.

CASE III. *Louan Williams*, æt. 16, thrown from open buggy, striking on shoulder; fractured clavicle at middle-third. Union rapid, but inner fragment is a little elevated, and some deformity results. A neck-yoke splint was used.

Dr. E. M. Moore, of Rochester, N.Y., in a report on this subject to the New York State Medical Society for 1870, calls attention to the fact that in these fractures at the middle-third, when we attempt to use any retentive apparatus that has an axillary pad, we overcome, by the pressure of the pad, the normal contractility of the clavicular fibres of the pectoralis major muscle; thus leaving the sterno-cleido mastoid muscle without an antagonist, and consequently the inner fragment is tilted upward and backward. To remedy these defects, the doctor proposes to apply a bandage which shall fulfil the indication of rendering the clavicular fibres of the great pectoral muscle tense; at the same time to fulfil the general indication of keeping the shoulder upward, outward, and backward. As the Transactions of the New York State Medical Society are not in general circulation, I here reproduce the drawings of Dr. Moore illustrating his dressing:

FRACTURES OF HUMERUS.—Dr. Clark Roberts, of Winchester, reports four cases of fractured humeri, which were treated with lateral splints, and made good recoveries. No shortening resulted, and perfect union was obtained in every case.

Dr. J. O. Hamilton, of Jerseyville, reports a case of fractured humerus just above condyles. Patient æt. $3\frac{1}{2}$; colored. Dressed the arm with plaster splint more than usually firm. Saw the child the following day on the street drawing a little child's wagon with the fractured arm. Recovery, however,



Dr. Moore's dressing for fracture of the clavicle. Front view. After Dr. Moore.



Dr. Moore's dressing for fracture of the clavicle. Back view. After Dr. Moore.

was rapid, the bandage allowing no motion of fragments; and the child has no deformity, or loss of motion in the joint.

Dr. R. M. Wilson, Palmyra, reports five cases of fracture of humerus, one of which was complicated with dislocation of forearm backward. (The writer would here state that, in his opinion, this dislocation cannot occur unless the coronoid process of the ulna be fractured.) Owing to the high state of inflammation, the doctor says, he could not apply a satisfactory dressing. He early resorted to passive motion; but ankylosis of the elbow-joint was the result, and slight displacement of fragment. His remaining cases were treated with pasteboard splints, and after a few days starch bandage. Good results.

Dr. A. K. Van Horne, Jerseyville, reports two cases of this fracture, in one of which there was also a longitudinal fracture of inner condyle, which was treated with roller bandage, and the other case complicated with a dislocation (what dislocation he does not state), which was treated with a starch bandage. In each case there was a good union without deformity.

Dr. Bartlett, of Virden, reports a case of this fracture treated with pasteboard splints. Good union.

Dr. Herriott, of Grafton, reports eight cases, but mentions neither the apparatus nor the results obtained.

Dr. Wardner, of Cairo, reports eight cases, one of which was an open fracture, and two comminuted. They were all treated with straight splints; and he mentions no instance of non-union, and says there was no shortening.

Dr. Anthony, of Sterling, reports six cases of this fracture treated with straight splints. No deformity or shortening.

The writer had a case in 1869, which deserves mention in this, that ankylosis of the elbow-joint, which had commenced, was prevented by persistent use of Rose's splint, a cut of which may be seen figured in "Hamilton's Fractures and Dislocations," p. 250. The patient was a little girl, *æt.* 5, who fell from the steps of a house, fracturing humerus just above condyles. Plaster splint was applied in six hours, and on the fourteenth day removed, as ankylosis was threatened, and Rose's splint applied. The screw was turned twice or thrice

daily as far as patient could bear it. The arc of motion constantly increased, and patient in three weeks more was able to turn the screw until the arm was straight. She entirely recovered the use of the joint.

Dr. E. M. Moore, of Rochester, N.Y., in a short lecture delivered in the Surgical Section of the American Medical Association, which met at St. Louis within the present month, exhibited a fractured humerus, which was fractured at the anatomical neck; and the doctor clearly showed that the anatomical neck is not the constricted portion just beneath the head of the bone, as the latter is simply a groove for the attachment of the capsular ligament. Fracture actually takes place, partly through this groove and partly through the tuberosities, the original line of union of the shaft with the epiphysis.

FRACTURE OF THE RADIUS AND ULNA.—Dr. Bartlett, of Virden, reports five cases of this fracture treated with paste-board splints; but he makes no mention of the duration of treatment. They recovered without deformity.

Dr. Herriott, of Grafton, reports seven cases of this fracture, but omits to state how they were treated, or with what result.

Dr. J. O. Hamilton, Jerseyville, reports five cases of this fracture all treated with plaster splint, all of which made good recoveries. He relates them in detail:

CASE I. *Jno. Gorman*, æt. 14, took hold of the "tumbling shaft" of a threshing machine while it was revolving at the rate of 500 revolutions per minute; his glove, being wet, adhered to the shaft; his hand and arm were wound around it, fracturing the humerus, radius, and ulna; the latter was an open fracture, the ulna protruding through the skin; the humerus was comminuted. The arm was dressed with Paris plaster, and healed rapidly. Slight deformity of contour, but motion is perfect.

CASE II. *Mrs. Wallpool*, æt. 81, was thrown to the ground by a pair of restive horses; radius and ulna fractured at the upper portion of middle-third. Applied plaster splint. Dressing unremoved for sixty days. A good union and no deformity.

CASE III. *James Fitzgerald*, æt. 13, fell from fence and fractured radius and ulna at middle-third. Applied plaster splint. No deformity.

CASE IV. Precisely similar to above.

CASE V. *John Lane*, æt. 9, fell from back part of wagon-box while the wagon was in motion; fractured middle-third of radius and ulna. Dressed with plaster. Recovery was rapid; but after the splint had been removed, he fell from a porch to the ground, a distance of four feet; broke up the callus that had formed. Arm was redressed with same splint; unremoved for sixty days. Recovery this time permanent and without deformity.

BARTON'S FRACTURE OF THE RADIUS.—The very existence of this fracture has been doubted by many; but a case has been reported to the writer, by Dr. Breed, of Princeton, which was treated with Barton's dressing, which is identical with that recommended by Dr. Collins, of Dublin—*i. e.*, a straight palmar and dorsal splint, and does not incline the hand.

COLLE'S FRACTURE OF THE RADIUS.—And now we approach a fracture about which volumes have been written, scores of splints and manifold dressings invented; all speaking plainly that a satisfactory mode of treatment had not yet been found, or the variety recommended would have been less. To the mind of the writer, the discovery by Dr. Moore, of Rochester, N.Y., that nearly every case of Colle's fracture was complicated with a dislocation of the ulna, "which had a regular position, and which must be rectified before replacement of the fracture should be made, and without which imperfect results are to be expected," whatever be the dressing used. The doctor's mode of procedure is as follows:

"The patient may be etherized or not. An assistant holding the forearm of the patient, the surgeon grasps his hand, the right with the right, and *vice versa* the other hand placed under the forearm above the fracture. He now brings the thumb over the back of the ulna, the fingers wrapping around the radius. Traction is first made by extension, then drawing the hand laterally to the radial side, then backward, next

keeping it backward ; and while making extension it is swung to the ulnar side, bending laterally, the extension of the hand is changed for flexion ; thus describing nearly a semicircle in circumduction. The test of the reduction is to be found by the presence of the head of the ulna on the radial side of the extensor ulnaris. The anatomy of the dislocation is this : the head of the ulna rests medially through the triangular fibro-cartilage on the cuneiform bone, and is restrained from replacement by the annular ligament—holding on each side the tendons of the extensor minimi digiti—and the extensor carpi ulnaris ; thus making a concavity corresponding in form to a socket. When it is pressed into this pocket, and the hand flexed so that the head is supported by the wrist, and the position of the hand is also restored in its relation to the radius as a result of the displacement of the ulna, the ulnar extensor is carried from its place above the styloid process to the opposite side of the bone in an extreme displacement, but sometimes remains above its centre. To disentangle the styloid, and swing the tendon of the extensor over into its place, is the purpose of the manœuvre. The hand is drawn toward the radius to pull off (by stretching) the annular ligament. The backward motion, accompanied with extension, renders the extensor tendon tense, which serves to draw the annular ligament backward. This is effected by pressing the thumb upon the ulna. The circumduction carries the tendon over the side."

The doctor's after-treatment is sufficiently simple. He "places along the ulna, from the pisiform bone upward, a cylindrical compress about two inches in length and a-half an inch in thickness. This is placed against the ulna, resting also on its radial border against the tendon of the flexor carpi ulnaris." This compress is retained in place by adhesive strips.

Dr. Anthony, of Sterling, reports seven cases of Colle's fracture treated with pistol-shaped splints, which made good recoveries.

Dr. Wardner, of Cairo, reports two cases treated with pistol-shaped splints, which made good recoveries.

Dr. Clark Roberts, of Winchester, reports three cases of Colle's fracture, which were treated with straight splints, and which recovered with but slight deformity.

Dr. J. P. Caldwell reports three cases of this fracture, which were treated with pasteboard splints, and which recovered without shortening.

FRACTURES OF THE CARPUS.—Dr. Bartlett, of Virden, reports three cases, all of which required amputation.

Dr. Anthony, of Sterling, reports two cases, both of which were treated with curved splints and hand-block, after the manner of E. P. Smith's splint. Good recovery.

FRACTURES OF VERTEBRA.—Dr. Bartlett, of Virden, reports a case of vertebral fracture, which was (August 20, 1872) under treatment for paralysis.

Dr. Wardner, of Cairo, reports two cases, one under treatment for paralysis (October 16, 1872), and one case in which was paralysis and death in forty days.

Dr. Van Horne, of Jerseyville, reports a case of this fracture followed by death in three days.

Dr. Anthony, of Sterling, reports a case of this fracture from a gun-shot wound which resulted favorably. Used no dressings, save those applicable to the external wound.

Dr. Etheridge, Chicago, reports (since the above was written) a case in which the posterior arch of sixth cervical vertebra was crushed. There was complete paralysis. Breathing wholly diaphragmatic. Death at fiftieth day, large bed-sores previously supervening.

The writer saw a case in 1869, in which a negro had been struck across the back of the neck with a club. He immediately fell, and died in three hours. At the autopsy it was found that the transverse process of the atlas was broken, no other lesion perceptible, no extravasation of blood, and it was supposed the man died from concussion.

But a single case of **FRACTURE OF THE SACRUM** has been reported, and that by Dr. Clark Roberts, of Winchester. No dressing was applied, and the case terminated favorably.

FRACTURES OF CRANIUM.—The same gentleman reports

four cases, two of which were trephined, one died, the remainder recovered.

Dr. Anthony, of Sterling, reports six cases, of which four recovered and two proved fatal. All were trephined but *one*, and that the most hopeless case.

Dr. Wardner, of Cairo, reports four cases. Heads were bandaged, and all recovered.

Dr. Van Horne, of Jerseyville, reports three cases, all of which recovered.

I. Was produced by the tine of a pitchfork passing into the cranium through the parital bone, penetrating through anterior lobe of the cerebrum to the frontal bone. Treatment, cold water dressing and Rochelle salts. Complete recovery.

II. Fracture of external angular process of frontal bone and adjoining portion of malar. The outer portion of the orbit came away in fragments.

III. Fracture and depression of temporal bone, which resulted in recovery. The doctor does not state whether he trephined or not.

FRACTURES OF BONES OF THE FACE.—Dr. Anthony, of Sterling, reports two cases of fracture of the bones of the face. Were treated with adhesive strips and bandages. One made a good recovery ; the other imperfect.

Dr. Bartlett, Virden, reports six cases treated in a similar manner. Some resulted in permanent deformity.

Dr. Wilson, of Palmyra, reports a case of fracture of the nasal bones, which he treated with a pledget of lint, firmly packed within the nostrils for counter-pressure, against adhesive strips across the nose. Result fair. Nose very slightly flattened, not in any way distorted.

FRACTURE OF ILEUM.—Dr. Plummer, of Rock Island, reports two cases :

I. *Hudson Engle*. Man run over by a wagon loaded with coal. The right ileum was fractured through the acetabulum and the pubis near the iliac extremity. The leg was extended on a straight splint improvised for the case. The two legs were bandaged together, and pelvis bandaged with many-tailed bandage, extended well down the thigh. Recovery

perfect. Has perfect use of hip-joint, and attends to his usual labor on his farm. Date, December 3, 1870, and discharged June 1, 1871.

II. *Peter Gormley*. This man was crushed under a stone-door cap of a falling building, and literally buried under brick and mortar. He was severely bruised all over his body; had three wounds of the scalp and an open comminuted fracture of the left ileum. The opening in iliac wound extended into the peritoneal cavity, and there was profuse hemorrhage. Introduced three fingers within the wound, and removed the detached portions of bone; the others were then brought into position. The wound unclosed, dressed with lint compress and broad, many-tailed bandage around pubes. Passive hemorrhage continued for a number of days. Only slight peritonitis resulted, which the doctor attributes to the fact that the wound was kept open, allowing free drainage. Man recovered with a slight displacement of crest and superior spinous process of ileum; otherwise the recovery is perfect.

In the practice of the writer a fracture of the ileum occurred, which was only discovered at the autopsy of the patient. The man was accidentally shot, gun in the hand of another man, patient standing with his hand in his breeches pocket very close to the muzzle of the gun, which was loaded with squirrel shot. The charge passed through the pocket, through his hand, fracturing and comminuting the phalanges and metacarpal bones of the third and fourth fingers. The charge passed directly into the thigh, just below the trochanter major, and was lost to sight or probe. Even a flexible bougie failed to pass into the wound any farther than the thigh-bone, which was not found to be fractured—in fact, could be seen through the open wound. Upon turning the patient over for a more thorough examination, a tumor was discovered over the lumbo-sacral articulation. An incision was made at that point, the shot and pieces of clothing extracted, wound thoroughly cleansed with warm water. The third and little fingers were amputated through the upper fragments of their metacarpal bones, and a full dose of morphia administered. The next day a very offensive discharge, partly sanious, was issuing

from the wound in the thigh and the incision in the back. Injected the compound solution of bromine. Continued morphia. Patient sank of peritonitis on the fifth day. Found the ala of ileum fractured, not comminuted; and mortification had taken place in the peritoneal lining of the iliac fossa.

From the above reports that have been sent me, it will be seen that, with the exception of Dr. Truesdale's fracture-bed, no one reports an invention of his own, but that the results obtained by the apparatus already in use are exceedingly good, and reflect credit upon Illinois surgery. * It will also be seen that in but a single instance was amputation performed for a fracture of the long bones, and that, in consequence of a rupture of the interosseous artery and mortification of the leg. But one case of non-union is reported. Immovable dressings, whatever may be their merits or demerits, are evidently not much in use in the State of Illinois; and the majority of the profession in the State do not adhere to the doctrine of waiting for the primary swelling to abate before applying a permanent dressing. The frequency of shortening after the use of weights and pulleys deserves especial notice. I would also call attention to the use of Truesdale's fracture-bed, in case a patient with fracture is to be transported from one place to another. With this bed a patient may be taken to New York or Chicago without injury to, or motion of, the limb. The variety of dressings which have been reported for the same fractures, and the almost uniform success attending their efforts, would seem to indicate that in skilled hands almost any kind of apparatus that fulfills a majority of the indications to be met, will meet with reasonable success. And that surgeons everywhere may take more pains to preserve records, and thus place the treatment of fracture more upon an equality, and that each may heartily try to find the best, is the wish of the writer.

* The writer declines to vouch for the accuracy of *all* reports, that have been handed him, especially upon fractures of the femur, recognizing the fact that, even in medicine, there are those who will gloss over a glaring defect to make a good showing; and that inaccurate diagnoses, and, in some instances, impossibility of measuring limbs after treatment owing to removal, death, or turpitude of patient, may also tend to modify the results; but, in the main, the author can verify nearly every case mentioned above.

